LINCOLN
APPLIED GEOLOGY, INC.
ENVIRONMENTAL CONSULTANTS

October 30, 1995

Mr. Jason Feingold
Sites Management Section
Vermont Department of
Environmental Conservation
103 South Main Street
Waterbury, Vermont 05676

RE: Mendon Methodist Church - Site Status Report (VDEC Site #94-1734)

Dear Mr. Feingold:

Lincoln Applied Geology, Inc. (LAG) has continued the operation and monitoring of the vapor extraction system (VES) associated with the Wiggins house at the Mendon Methodist Church site. VES operation has continued throughout the past four months with influent PID readings greater than the 5 parts per million (ppm) threshold for shutdown. No vapor impacts have been measured within the Wiggins house and no impacts to nearby drinking water wells or Mendon Brook have been measured.

Unfortunately, on September 22, 1995 an additional spill event occurred on-site. A fuel oil company mistakenly delivered 100 gallons of fuel oil to the existing broken 275-gallon fuel oil storage tank in the Wiggins house. This resulted in the spillage of approximately 42 gallons of free phase product to the Wiggins house concrete floor. Upon discovering this leakage, members of the Mendon Methodist Church notified the fuel oil delivery company who pumped out the aboveground storage tank (AST) and recovered as much liquid from the floor as was possible utilizing Speedi-dry adsorbent. Vapor impacts were measured in the basement of the Wiggins house and on the first floor of the Wiggins house during initial spill cleanup, and up to two weeks afterwards. Vapor impacts to the inside of the house now appear to be minimal and the remainder of the contaminants are being collected by the VES. Data collected since the spill event indicates that site remediation time may be extended by one to two months in an attempt to meet the 5 ppm threshold for shutdown. Prior to the latest release, a VES shutdown period was initiated on September 6, 1995 and continued until October 4, 1995 when the system was reactivated.

To assist with the review of this report the following work products have been generated:

Table 1,	Ground Water Elevation/Product Thickness;
Table 2,	Photoionization Detector Results;
Table 3,	Ground Water Quality Results;

Figure 1,	Detailed Site Map;
Figure 2,	Detailed Map of Wiggins House Interior;
Chart 1,	Product Recovered in Vapor Form; and
Appendix A,	September 1995 Water Quality Results.

Figure 1, the detailed site map and **Figure 2**, the detailed map of the Wiggins house interior are presented to re-familiarize you with the overall site configuration. **Table 1** presents ground water elevation data collected on a routine basis since installation of the VES. Ground water elevations in the unconsolidated aquifer (MW-1 and Nye well) have shown a steady decrease since May 1995. This is a result of the dry summer and fall. Overall, ground water elevations remain approximately 75 feet below grade in these wells. The Wiggins and Church bedrock water supply wells have water levels significantly higher than MW-1. This continues to indicate that a significant upward component of ground water flow exists limiting the risk of impact to the drinking water supplies.

Photoionization detector (PID) assay results are presented on **Table 2**. PID readings in each of the monitoring wells and the bedrock/drinking water wells have remained at background (BG). The Wiggins basement also gave BG PID assays until the release on September 22, 1995. Since the new release and subsequent cleanup the PID readings within the basement have steadily declined. It has also been noted by LAG field technicians that olfactory notable odors are no longer present on the first floor of the Wiggins house. The total influent concentrations of the VES have continued to slowly decline since its installation in early May 1995. Readings for the three months prior to the most recent release averaged between 7 and 8 ppm. On September 6, 1995 the VES was shutdown to see if elevated levels of PID levels existed beneath the basement under ambient conditions. On September 20 the ambient PID levels beneath the Wiggins basement floor were found to be comparable with the levels during active extraction. For this reason the VES was left off until we received notice on October 4 that a new release had occurred. At that time, the VES system was turned back on and elevated PID readings (28 ppm) were observed.

The overall effect of the new release on the total product recovered in vapor form is shown on **Chart 1**. As can be seen, a dramatic increase in the number of gallons of product recovered is seen since the September 28 release. It is encouraging to note that both the PID readings of the influent to the VES and the overall amount of product recovered are in the process of declining within three weeks of the new release. We feel that influent PID readings will be at or near the 7 or 8 ppm level within the next month or two when the overall product recovery rate will become essentially static. To date a total of 13.5 gallons of product has been recovered in the vapor

phase since VES startup in early May 1995. It is estimated that than an additional five gallons of product has been recovered as a result of the most recent release. We plan to continue VES operation until PID readings are at or consistently near the 5 ppm shutdown threshold. At that time, the VES will be turned off to determine if elevated PID readings beneath the floor re-occur under ambient conditions. If elevated levels are not seen after a 4 week trial shutdown, the VES will be removed and a permanent passive vent plumbed from the VES line several feet above the Wiggins house eaves. This will allow for passive venting of very low levels of vapors ensuring no future impact to the Wiggins house.

Ground water quality samples were collected on September 6, 1995 from all previously sampled monitoring points. The data is summarized in **Table 3** and formal reports are included as **Appendix A**. Review of **Table 3** indicates that no fuel oil related contaminants have been quantified in any of the wells on-site or in the Mendon Brook (stream). We recommend that quarterly sampling continue to ensure that the most recent release has been appropriately remediated by the VES. Our next scheduled sampling is in December 1995.

In conclusion, we believe that the product released during the most recent spill event has and is being appropriately contained and recovered by the VES. Operation of the VES continues to limit potential migration of contaminants downward in the unconsolidated soils toward the unconsolidated and bedrock aquifers. We feel that the most recent release will extend on-site remediation and monitoring one to two months.

We will continue biweekly site visits to monitor VES operations and subsequent staged shutdown. Quarterly water quality sampling is next scheduled for December 1995. Please feel free to contact me with any questions regarding this site.

Sincerely,

Steven LaRosa
Hydrogeologist

SL/smk
enclosures
cc: Joe Watson
Ralph Tedesco

Lincoln Applied Geology, Inc.
Environmental Consultants
RD # 1 Box 710 • Bristol, Vermont 05443 • (802) 453-4384 • FAX (802) 453-5399

Project: Mendon Methodist Church
Location: Mendon, Vermont

Table 1
VDEC Site # 94-1734

Ground Water Elevation/Product Level (feet)

Data Point	TOC	05/19/95	05/24/95	05/31/95	06/14/95	06/27/95	07/12/95	07/25/95
MW-1	100.00	25.19	25.05	24.98	25.25	24.34	23.88	23.88
MW-2	103.79	<72.44	<72.44	<72.40	<72.14	<72.27	<72.29	<72.44
Wiggins Well	103.03	29.50	29.42	29.38	44.11	41.71	40.61	41.43
Church Well	99.74	40.54	40.36	40.15	45.00	45.15	45.28	54.16
Nye Well	101.53	49.48	49.22	49.08	27.49	26.76	27.02	27.03

Notes:
1 - Elevation datum assumed
2 - Reference elevation is elevation of top of PVC well casing
Light Grey Cell = DRY
Dark Grey Cell = Inaccessible

Project: Mendon Methodist Church
Location: Mendon, Vermont

Table 1
VDEC Site # 94-1734

Ground Water Elevation/Product Level (feet)

Data Point	TOC	08/09/95	08/23/95	09/06/95	09/20/95	10/04/95	10/11/95	10/23/95
MW-1	100.00	24.35	23.90	23.20		23.33	23.40	24.33
MW-2	103.79	<72.44	<72.44		<72.25			<72.27
Wiggins Well	103.03	41.62	41.23	37.86		39.98	40.16	19.76
Church Well	99.74	45.46	45.09	36.09		43.69	43.74	43.59
Nye Well	101.53	27.38	27.00	26.86		26.53	26.55	27.38

Notes:
1 - Elevation datum assumed
2 - Reference elevation is elevation of top of PVC well casing
Light Grey Cell = DRY
Dark Grey Cell = Inaccessible

Project: Mendon Methodist Church
Location: Mendon, Vermont

Table 2
VDEC Site # 94-1734

Photoionization Results (PID - ppm)

Data Point	05/03/95	05/11/95	05/19/95	05/24/95	05/31/95	06/14/95	06/27/95	07/12/95
MW-1	BG	BG	BG	BG	BG	BG	BG	BG
MW-2	BG	BG	BG	BG	BG	BG	BG	BG
Wiggins Well		BG	BG	BG	BG	BG	BG	BG
Wiggins Basement		1.0	BG	BG	BG	BG	BG	BG
Church Well		BG	BG	BG	BG	BG	BG	BG
Nye Well		BG	BG	BG	BG	BG	BG	BG
Total Influent	70	15.2	12.0	8.8	8.8	5.2	8.2	8.2
Canister #1	BG	1.0	0.2	0.4	0.2	0.4	0.2	0.4
Effluent	BG	BG	BG	BG	BG	BG	BG	BG

Notes:
BG - Background
SL - Saturated Lamp
* = Open boring in future VP-1 area of basement

Project: Mendon Methodist Church
Location: Mendon, Vermont

Table 2
VDEC Site # 94-1734

Photoionization Results (PID - ppm)

Data Point	07/25/95	08/09/95	08/23/95	09/06/95	09/20/95	10/04/95	10/11/95	10/23/95
MW-1	BG	BG	BG	BG	BG	BG	BG	BG
MW-2	BG	BG	BG	BG	BG	BG	BG	BG
Wiggins Well	BG	BG	BG	BG	BG	BG	BG	BG
Wiggins Basement	BG	BG	BG	BG	BG	4.0	1.2	0.2
Church Well	BG	BG	BG	BG	BG	BG	BG	BG
Nye Well	BG	BG	BG	BG	BG	BG	BG	BG
Total Influent	7.4	7.2	6.8	6.8	6.0	28	15.0	8.2
Canister #1	BG	1.0	1.4	1.4		1.0	3.8	4.0
Effluent	BG	BG	0.4	0.2		BG	0.2	0.2

Notes:
BG - Background
SL - Saturated Lamp
* = Open boring in future VP-1 area of basement

Project: Mendon Methodist Church
Location: Mendon, Vermont

Table 3
VDEC Site # 94-1734

Ground Water Quality Results (ppb)

Data Point	02/02/95	02/23/95	03/02/95	05/19/95	09/06/95
MW-1	<10 6.4	<5 <8		<5 <6	<5 <6
MW-2					
Wiggins Well	<10 <4			<5 <4	<5 <6
Church Tap	<10 <4			<5 <4	<5 <6
Sugar & Spice Tap	<10 <4			<5 <4	<5 <6
Nye Well			<10 <4	<5 <4	<5 <6
Stream	<10 <4			<5 <4	<5 <6

NOTES:
MTBE in upper right corner of cell
BTEX in lower left corner of cell
< - Contaminant not detected at specified detection limit

Mendon Methodist Church
Product Recovered in Vapor Form

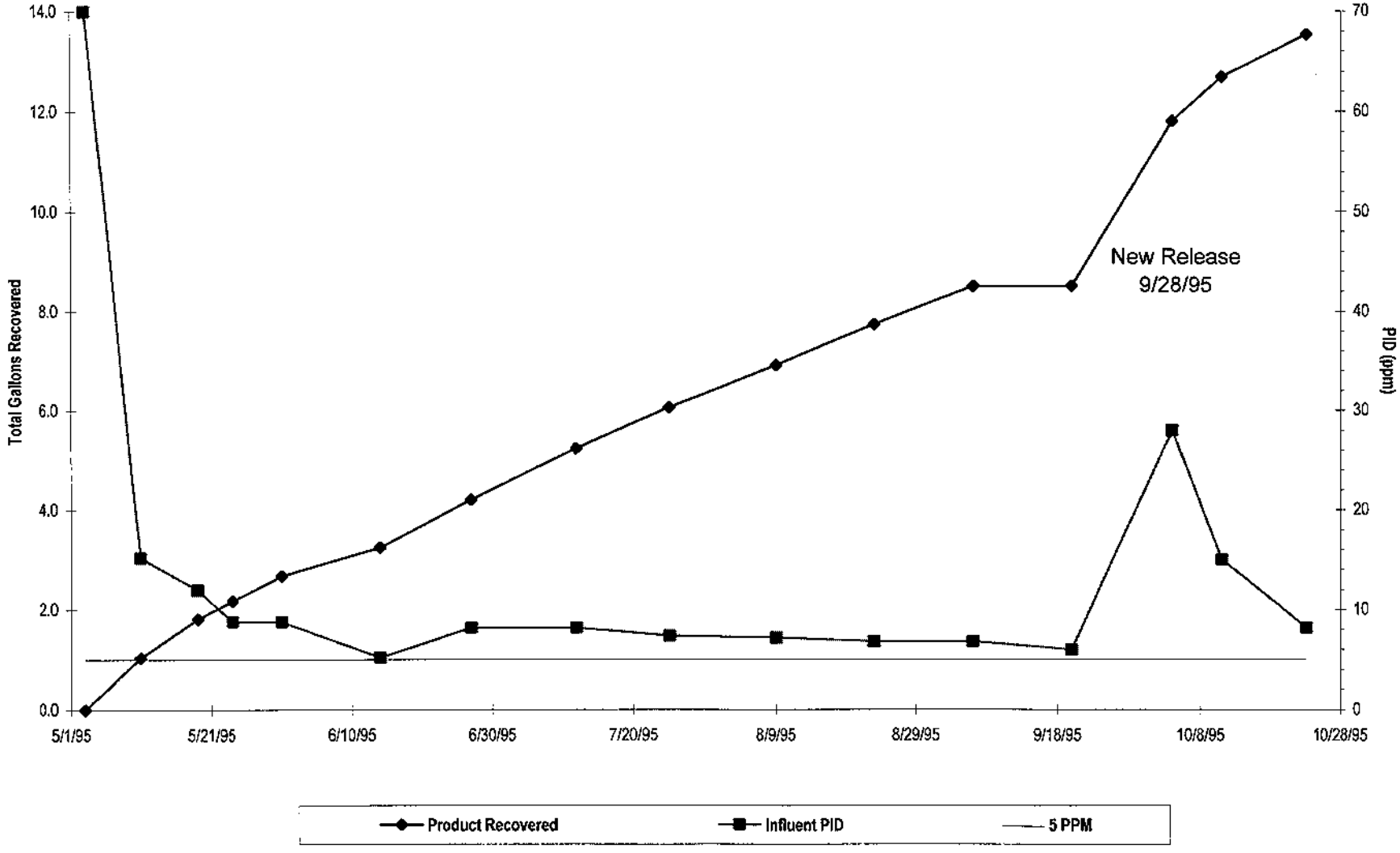
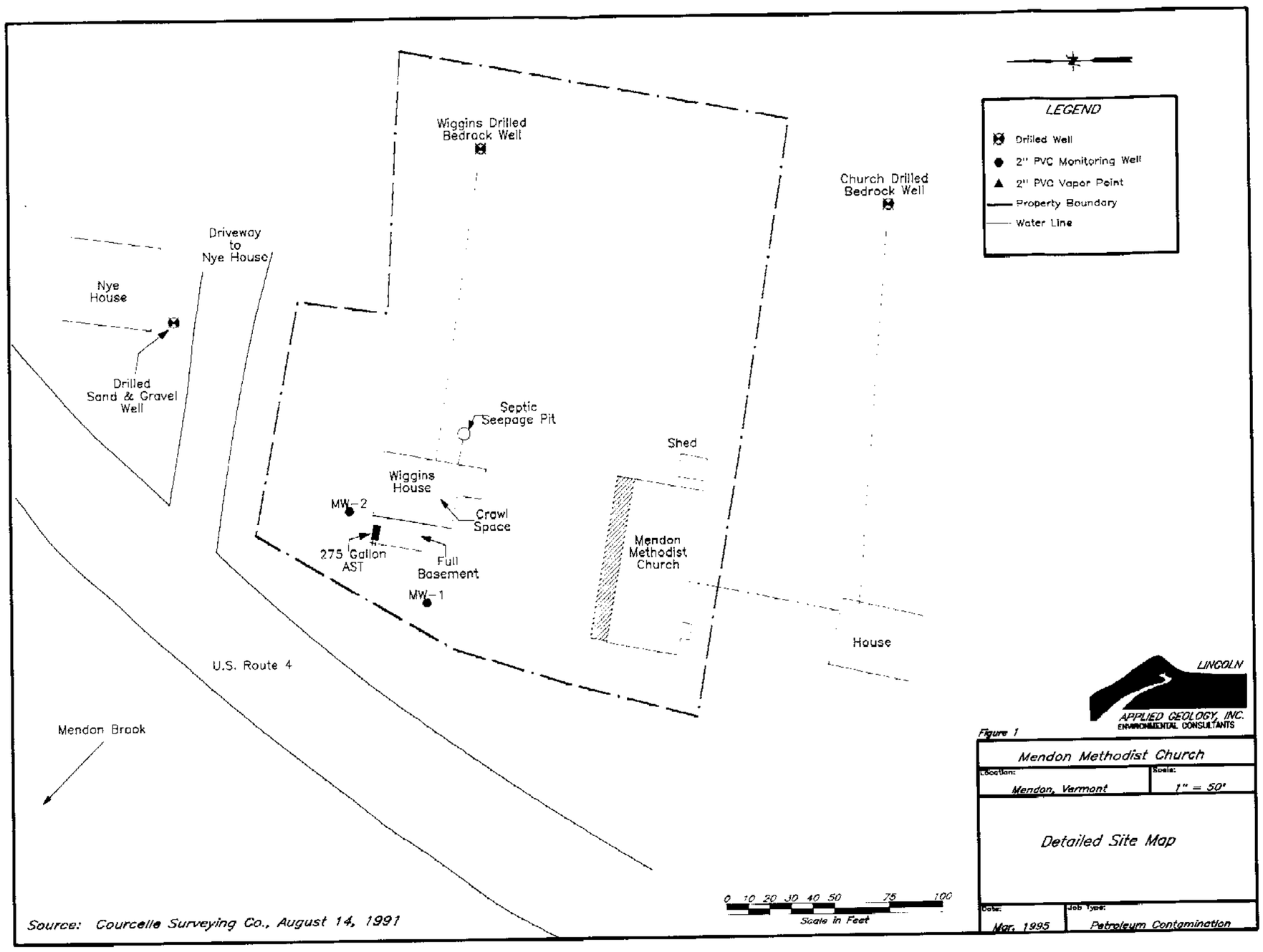
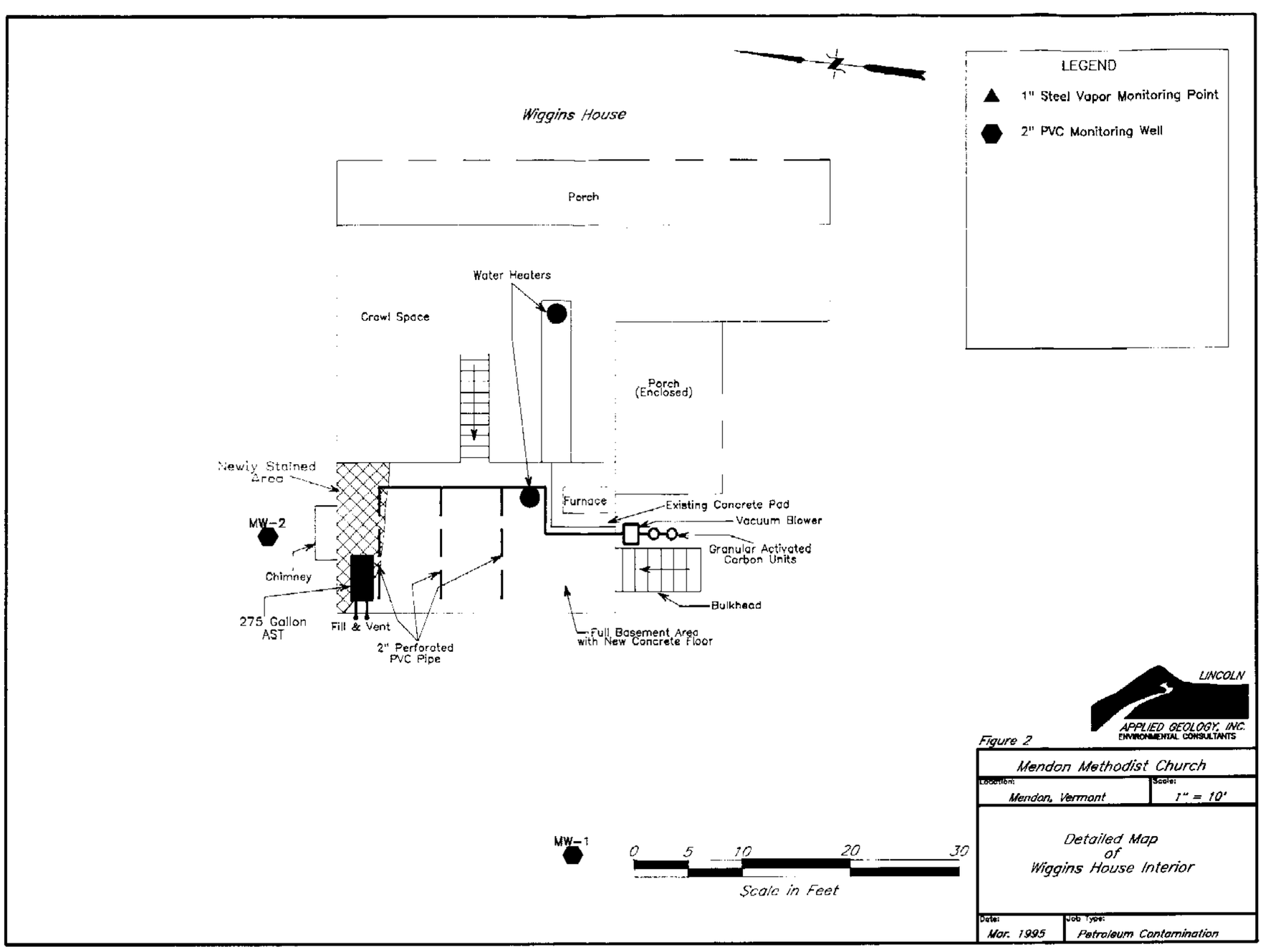


Chart 1


Wiggins Drilled Bedrock Well
Church Drilled Bedrock Well
LEGEND
Drilled Well
2" PVC Monitoring Well
2" PVC Vapor Point
Property Boundary
Water Line
Driveway to Nye House
Nye House
Drilled Sand & Gravel Well
Septic Seepage Pit
Shed
Wiggins House
MW-2
Crawl Space
275 Gallon AST
Full Basement
MW-1
Mendon Methodist Church
House
U.S. Route 4
Mendon Brook
0 10 20 30 40 50 75 100
Scale in Feet
Source: Courcelle Surveying Co., August 14, 1991
LINCOLN
APPLIED GEOLOGY, INC.
ENVIRONMENTAL CONSULTANTS
Figure 1
Mendon Methodist Church
Location: Mendon, Vermont
Scale: 1" = 50'
Detailed Site Map
Date: Mar. 1995
Job Type: Petroleum Contamination


LEGEND
1" Steel Vapor Monitoring Point
2" PVC Monitoring Well
Wiggins House
Porch
Water Heaters
Crawl Space
Porch
(Enclosed)
Newly Stained
Area
Furnace
Existing Concrete Pad
Vacuum Blower
MW-2
Granular Activated
Carbon Units
Chimney
Bulkhead
275 Gallon
AST
Fill & Vent
2" Perforated
PVC Pipe
Full Basement Area
with New Concrete Floor
MW-1
0
5
10
20
30
Scale in Feet
LINCOLN
APPLIED GEOLOGY, INC.
ENVIRONMENTAL CONSULTANTS
Figure 2
Mendon Methodist Church
Location:
Mendon, Vermont
Scale:
1" = 10'
Detailed Map
of
Wiggins House Interior
Date:
Mar. 1995
Job Type:
Petroleum Contamination

Appendix A

September 1995 Water Quality Results

SEP 12 1995

Green Mountain Laboratories, Inc.

RR#3 Box 5210
Montpelier, Vermont 05602
Phone (802) 223-1468 Fax (802) 223-8688

LABORATORY RESULTS

CLIENT NAME:	Lincolm Applied Geology	REF #:	0153
ADDRESS:	RD 1 Box 710	PROJECT NO.:	none given
	Bristol, VT 05443		
SAMPLE LOCATION:	Mendon Methodist Church	DATE OF SAMPLE:	9/6/95
SAMPLER:	Jim Holman	DATE OF RECEIPT:	9/6/95
		DATE OF ANALYSIS:	9/7/95-9/8/95
ATTENTION:	Steve La Rosa	DATE OF REPORT:	9/11/95

Pertaining to the analyses of specimens submitted under the accompanying chain of custody form, please note the following:

- Water samples submitted for VOC analysis were preserved with HCl. The trip blank was prepared by the client from reagent water supplied by the laboratory.
- Specimens were processed and examined according to the procedures outlined in the specified method.
- Holding times were honored.
- Instruments were appropriately tuned and calibrations were checked with the frequencies required in the specified method.
- Blank contamination was not observed at levels interfering with the analytical results.
- Continuing calibration standards were monitored at intervals indicated in the specified method. The resulting analytical precision and accuracy were determined to be within method QA/QC acceptance limits.
- The efficiency of analyte recovery for individual samples was monitored by the addition of surrogate analytes to all samples, standards, and blanks. Surrogate recoveries were found to be within laboratory QA/QC acceptance limits, unless noted otherwise.

Reviewed by:

Allan L. Lovell

Director, Chemical Services

Green Mountain Laboratories, Inc.

RD#1, Box 5210
Montpelier, Vermont 05602
Phone (802) 223-1468 Fax (802) 223-8688

LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Mendon Methodist Church	GML REF.#:	0153
REPORT DATE:	September 11, 1195	STATION:	Trip
DATE SAMPLED:	September 6, 1995	TIME SAMPLED:	7:30 AM
DATE RECEIVED:	September 6, 1995	SAMPLER:	Jim Holman
ANALYSIS DATE:	September 7, 1995	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 107 %

Green Mountain Laboratories, Inc.

RD#1, Box 5210
Montpelier, Vermont 05602
Phone (802) 223-1468 Fax (802) 223-8688

LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Mendon Methodist Church	GML REF.#:	0153
REPORT DATE:	September 11, 1195	STATION:	MW-1
DATE SAMPLED:	September 6, 1995	TIME SAMPLED:	12:30 PM
DATE RECEIVED:	September 6, 1995	SAMPLER:	Jim Holman
ANALYSIS DATE:	September 7, 1995	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 106 %

Green Mountain Laboratories, Inc.

RD#1, Box 5210
Montpelier, Vermont 05602
Phone (802) 223-1468 Fax (802) 223-8688

LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Mendon Methodist Church	GML REF.#:	0153
REPORT DATE:	September 11, 1195	STATION:	Stream
DATE SAMPLED:	September 6, 1995	TIME SAMPLED:	12:40 PM
DATE RECEIVED:	September 6, 1995	SAMPLER:	Jim Holman
ANALYSIS DATE:	September 7, 1995	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 108 %

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Montpelier, Vermont 05602
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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Mendon Methodist Church	GML REF.#:	0153
REPORT DATE:	September 11, 1195	STATION:	Nye Well
DATE SAMPLED:	September 6, 1995	TIME SAMPLED:	11:50 AM
DATE RECEIVED:	September 6, 1995	SAMPLER:	Jim Holman
ANALYSIS DATE:	September 7, 1995	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 107 %

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Montpelier, Vermont 05602
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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Mendon Methodist Church	GML REF.#:	0153
REPORT DATE:	September 11, 1195	STATION:	Wiggins Well
DATE SAMPLED:	September 6, 1995	TIME SAMPLED:	12:00 PM
DATE RECEIVED:	September 6, 1995	SAMPLER:	Jim Holman
ANALYSIS DATE:	September 7, 1995	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 106 %

Green Mountain Laboratories, Inc.

RD#1, Box 5210
Montpelier, Vermont 05602
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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Mendon Methodist Church	GML REF.#:	0153
REPORT DATE:	September 11, 1195	STATION:	Church Tap
DATE SAMPLED:	September 6, 1995	TIME SAMPLED:	11:35 AM
DATE RECEIVED:	September 6, 1995	SAMPLER:	Jim Holman
ANALYSIS DATE:	September 7, 1995	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 108 %

Green Mountain Laboratories, Inc.

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LABORATORY RESULTS

GC/MS METHOD - BTEX (BENZENE, TOLUENE, ETHYLBENZENE, XYLENES) + MTBE

CLIENT NAME:	Lincoln Applied Geology	PROJECT CODE:	not given
PROJECT NAME:	Mendon Methodist Church	GML REF.#:	0153
REPORT DATE:	September 11, 1195	STATION:	Sugar & Spice Tap
DATE SAMPLED:	September 6, 1995	TIME SAMPLED:	12:15 PM
DATE RECEIVED:	September 6, 1995	SAMPLER:	Jim Holman
ANALYSIS DATE:	September 8, 1995	SAMPLE TYPE:	Water

PARAMETER	PQL (µg/L)	Conc. (µg/L)
Benzene	1	ND
Toluene	1	ND
Ethylbenzene	1	ND
Xylenes	3	ND
MTBE	5	ND

Surrogate % Recovery: 106 %

Green Mountain Laboratories, Inc.

RR #3, box 5210
Montpelier, VT 05602
(802) 223-1468 · fax (802) 223-8688

Page 1 of 1

GML # 0153

8153

CLIENT NAME: Lincoln Applied Geology.
ADDRESS: RD.1 Box 710 Bristol VT.
PROJECT NAME: Mendon Methodist Church.
PROJECT NUMBER: —
PROJECT MANAGER: Steve LaRosa
SAMPLER: Jim Holman

ANALYSIS REQUESTED

Sample Location	Date	Time	# of cont.	pres ervd	Sample Type	BTEX	MTBE	REMARKS:
Trip	9/6/95	730	2	HCl	40ml	X		1x
MW.1		1230				X		1x
Stream		1240				X		1x
Nye Well		1150				X		1x
Wiggins Well		1200				X		1x
Church Tap		1135				X		1x
Sugar & Spice Tap	V	1215	V	V	V	X		1x

CHAIN OF CUSTODY RECORD

1) Relinquished by:		Received by:		Date/Time	9/6/95 5:30PM
2) Relinquished by:		Received by:		Date/Time	
3) Relinquished by:		Received by:		Date/Time	